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Title Slide: Data Collected Through HSLS:09

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The topics in this module provide information from High School Longitudinal Study of 2009, or HSLS:09, on the algebraic assessment and the questionnaires for students, parents, school administrators, counselors, and mathematics and science teachers. Additionally, this module provides information on the response rates from the base year collection.

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The HSLS:09 mathematics assessment of algebraic reasoning was developed specifically for the study. A Mathematics Advisory Panel developed, reviewed, refined, and validated the framework and reviewed and approved each proposed item.

The test and item specifications reflect six domains of algebraic content, which included the language of algebra; proportional relationships and change; linear equations, inequalities, and functions; nonlinear equations, inequalities, and functions; systems of equations; sequences and recursive relationships. Additionally, the assessment reflected four algebraic reasoning processes, which included demonstrating algebraic skills, using representations of algebraic ideas, performing algebraic reasoning, and solving algebraic problems.

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The algebraic assessment was self-administered online. In the majority of cases, the assessment administration took place during the school day. If a student was unable to participate during the in-school sessions, the assessment was administered outside of school.

The same assessment that was administered for the Base year was planned to be used for the First Follow-up; however, additional more difficult items were added to the First Follow-up assessment for students' routed into the highest level of difficulty. This minimized ceiling effects found in the base year assessment.

Information on scores presented on the HSLS:09 data file are available in Chapter 2 of both the base year and the first follow-up Data File Documentation, or the DFD.

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To review, during the base year of HSLS:09, students and their parents, mathematics and science teachers, school counselors, and school administrators were surveyed.

During the first follow-up in 2012, questionnaires were administered again to students and their parents, school counselors, and school administrators.

In the slides that follow, more information on HSLS:09 student, parent, teachers, school, and school counselor questionnaires used through the HSLS:09 will be presented.

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The student questionnaire was primarily self-administered using a computer during in-school sessions.

In the base year, if a student was unable to participate during the in-school sessions (due to absence or having dropped out of school, for example), a telephone interview was conducted using the same survey instrument.

In the first follow-up, if a student was unable to participate during the in-school sessions an option was offered to log in and complete the survey by web.

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Students provided information on their demographic characteristics, such as gender, race/ethnicity, birth date, and language background. Additionally, students provided information on their school experiences in the current and previous school year (including mathematics and science activities, course enrollment, and coursework).

Students also responded to questions providing information on constructs such as self-efficacy in mathematics and science; attitudes about school, mathematics, and science; whom the student talks to about education and career plans; high school, college, and career plans, including any intentions to take advanced mathematics and science courses; educational expectations; plans for the year after high school; estimates of the cost of college; and, expected occupation at age 30.

The base year student questionnaire also included locating questions, which included names, addresses, and phone numbers of people who would know how to locate the student for future rounds of the study.

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The first follow-up student questionnaire builds on the base year, and elaborates, expands on, and captures evolving attitudes and plans. There are many repeated measures, such as mathematics and self-identity, mathematics and science utility, and mathematics and science efficacy. At the same time, the questionnaire also contained new or updated items that respond to changes since the fall of ninth grade. For example, greater emphasis on postsecondary planning, replaced items on the transition into high school.

Topics explored in the questionnaire included but were not limited to: high school attendance, grade progression, and attainment; school experiences (including withdrawal from school); demographics and family background (including plans and preparations for the future, particularly post-high school); completion of admissions tests; influences on thinking and behavior; related peer behaviors, expectations and

aspirations; college choice and characteristics; knowledge of tuition; and whether they think they will qualify for financial aid, whether they would apply, and if not, why not.

The questionnaire also asked about high school course taking including feelings about mathematics and science classes; mathematics and science identity and utility; extracurricular programs; time spent on homework; and jobs and work for pay. More detailed information focused on mathematics and science was obtained from the high school transcript study.

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A parent or guardian from each of the sampled students was asked to complete a 30-minute questionnaire providing information about the student's home life. The parent that is most knowledgeable about the students' school situation and experience was asked to complete the questionnaire. The parent questionnaire could be self-administered online or completed with a professional interviewer via computer assisted telephone interview, or CATI.

Additionally, to mitigate nonresponse among parents, a paper-and-pencil questionnaire containing critical questionnaire items was sent to nonresponding parents near the end of data collection. About 5% of participant parents chose this option. This abbreviated questionnaire collected information about the student's family structure and the parents' education, income, and occupation.

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The complete base year parent questionnaire included substantive items that covered the student's family structure and household members; the parents' race or ethnicity, immigration status, language use, educational attainment, and occupations; household income; the student's educational history; parental involvement in the student's education and learning; parental aspirations for the student's higher education, and any plans and preparations for the student's postsecondary education. If applicable, parents reported what type of postsecondary institution the student is most likely to attend first, when this education would begin, how much they estimate a postsecondary education would cost, whether they plan to help pay for this education, and how they have prepared financially.

The questionnaire also collected contact information to help locate the student in subsequent rounds of the study.

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The first follow-up parent questionnaire provided an opportunity to collect updates on the constructs for which parents provided information in the base year of HSLs:09, as well as to assess the ways in which parent and household status, characteristics, and plans and preparations may have changed since the student's 9<sup>th</sup> grade year.

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In the base year, teachers were requested to complete the 30-minute Teacher Questionnaire if they were teaching an HSLS:09 sample student in one of their science or mathematics classes. The questionnaire was available online or via CATI. It is important to keep in mind that the teacher data provide contextual information for students, who in turn constitute the unit of analysis. The teacher sample is **not** representative of teachers in the school. Therefore, the data collected are **not** nationally representative of teachers of 9<sup>th</sup>-grade students enrolled in a mathematics or science course. The design of this component does not provide a sample of teachers for standalone analysis, but instead permits specific teacher characteristics and practices to be related directly to the learning context and educational outcomes of the sampled students.

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The teacher questionnaire collected background information about the responding teacher, including both demographic characteristics and educational and teaching history. Mathematics and science teachers were asked to evaluate and provide information about their school, department, and classroom climate. Specifically, teachers were asked about the characteristics of their colleagues and principal; how teaching assignments were made; the achievement level and preparedness of students in their courses; their teaching approaches and course objectives; the prevalence of various problems at their school and barriers to effective teaching; their beliefs about the influence of students' home environments; and their beliefs about how the mathematics and science abilities of males and females compare. In part because of the fall timing of the survey, when teacher exposure to sampled students was likely to be comparatively low, teachers were **not** asked to supply ratings or evaluations of individual HSLS:09 students. It is important to note this difference between HSLS:09 and other secondary studies such as ELS and NELS where teachers rated students as part of the study.

Additional information about analyses of teacher data are presented in the module titled, 'Considerations for Analysts of HSLS:09 Data'.

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The School Administrator Questionnaire allowed for two respondents: the factual information sections could be delegated to a knowledgeable staff member, but the final section was to be completed **only** by the principal because its content concerned the principal's background and beliefs. The 30-minute questionnaire was available online or via CATI. For the base year, the data collected are nationally representative of school administrators and can thus be analyzed at the school level.

Another innovation of HSLS:09 regards the addition of transfer school administrators to the First Follow-up; that is, schools to which HSLS:09 students transferred following the base year collection were surveyed, as well as administrators from base year schools.

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The Base year and First Follow-up school administrator questionnaire elicited information on a number of concepts. It provided information about school characteristics, such as grade span, school control (for example, Public, Catholic, and Private other than Catholic) and type of academic calendar, course scheduling, average daily attendance, and student body composition. It also obtained information on the resources allocated to help struggling students, and the efforts to increase students' interest in mathematics and science.

The school administrator questionnaire also acquired information on department characteristics, including the number of full- and part-time teachers in mathematics, science, and other subjects; the number of subject-certified teachers; vacancies in mathematics and science departments and efforts to fill them; and, the percent of teachers absent on a typical day. Mathematics and science courses offered were also provided, as well as the administrator's demographics, educational, and professional background, evaluation of school challenges, and estimated time spent on various tasks and activities.

Additional information about analyses of school administrator data are presented in the module titled, 'Considerations for Analysts of HSLS:09 Data'.

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The Counselor Questionnaire was available online or via CATI. Although the head counselor at each school was asked to complete the questionnaire, in some cases another school counselor completed it. Therefore, data users must keep in mind that the respondents do not constitute a standalone nationally representative sample of high school counselors or 9th-grade counselors. Nor are the counselors necessarily the current counselors of the 9th-graders in the base year HSLS:09 sample, since some of the counselors deal with entirely different grades. The counselor questionnaire provides important information about the school environment and resources available to the students within the school.

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The majority of questions in the base year counselor questionnaire provide information about staffing and practices, such as the total number of full- and part-time counselors on staff, the number certified as high school counselors, the average caseload per counselor, the way in which counselors are assigned to students, and the goals emphasized by the counseling program. Other questions sought information about programs and services offered to students, including enrichment courses, assistance for struggling students, dropout prevention programs, and assistance with the transition from middle school to high school to college or the workforce. Data were also collected on the criteria used to place 9<sup>th</sup> graders and upperclassmen in mathematics. Counselors also provide information on their educational and professional background.

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Counselor questionnaires were collected both in the base year and first follow-up, although the base year questionnaire focused more on the transition into high school and the first follow-up on the transition to postsecondary destinations. Also, many questions inquired about staffing and practices (for example, counselor certifications and caseloads, basis for assignment to students), resources (including enrichment programs, services for struggling students, dropout prevention programs, and so on), and mathematics and science placement (for example, placement criteria for both ninth-graders and upperclassmen in mathematics and science).

Note that counselors from transfer schools, unlike administrators, were **NOT** surveyed in the first follow-up.

Additional information about analyses of counselor data are presented in the module titled, 'Considerations for Analysts of HSLs:09 Data'.

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The next few slides present information on the number of participants by round and the response rates by round, and by respondent.

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Overall, about half of the eligible selected schools participated, for a sample size of 944 schools – a 55.5 percent weighted response rate.

The response rate for students was 85.7 percent and for students' parents 67.5 percent.

The response rate for students' administrators and counselors was 94.5 percent and 90.0 percent, respectively.

The response rate for students' mathematics and science teachers was 71.9 percent and 70.2 percent, respectively.

Notice that these numbers are expressed at the student level. That is, as there was no nationally representative sample of parents or of teachers, the numbers in this table show the number of students with the associated parent and/or teacher data.

You may view this table in the DFD by clicking on the underlined screen text 'online' and scrolling to page roman numeral vi.

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At the first follow-up, the response rate for students was 82.0 percent.

A decision was made to select a random subsample of parents in the first follow-up, with the goal of achieving 7,500 or more parent interviews. The response rate for students' parents was 72.5 percent.

The response rate for students' administrators and counselors was 95.4 percent and 98.6 percent, respectively.

You may view this table in the DFD by clicking on the underlined screen text 'online' and scrolling to page 46.

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This module has provided you with information regarding the algebraic assessment and the questionnaires for students, parents, school administrators, counselors, and mathematics and science teachers used through the HSLs:09. Additionally, this module provided information on the response rates from the base year collection.

Important resources that have been provided throughout the module are summarized here along with the module's objectives for your reference.

You may now proceed to the next module in the series, or exit the module.